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Peat

UNITED STATES DEPARTMENT OF THE INTERIOR

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This publication is a chapter from the current Bureau of Mines Minerals Yearbook, comprising *Volume I, Metals and Minerals; Volume II, Area Reports: Domestic; Volume III, Area Reports: International.* The separate volumes of the Yearbook are sold by the Superintendant of Documents, Washington, D.C. 20402.

Peat

By James P. Searls[1]

Peat production in the United States increased slightly in 1987. In decreasing order of quantity, Florida, Michigan, Illinois, Iowa, and Indiana were the major peat-producing States. Reed-sedge peat was the most common kind produced, followed by humus, sphagnum moss, and hypnum moss. Peat sold in both bulk and packaged forms by domestic producers decreased 8% in quantity and increased 9% in value. Apparent consumption was essentially unchanged. Imports for consumption, primarily from Canada, decreased 7% but represented about one-third of apparent consumption. The predominant end use of peat was for agricultural and horticultural purposes. One peatland owner started construction of a 23-megawatt-electric powerplant, and another owner was in the permitting phase to establish a 200-megawatt-electric powerplant.

Domestic Data Coverage.—Domestic production data for peat are developed by the Bureau of Mines from a voluntary survey of U.S. peat operations. Of the 114 operations to which a survey request was sent, 8 reported that they were out of business. Of the remaining 106 mines, 97 responded, representing 92% of the total production shown in table 1. Production for the nine nonrespondents was estimated using prior year production levels adjusted for regional production trends and inflation.

Table 1.—Salient peat statistics

	1983	1984	1985	1986	1987
United States:					
Number of active operations	94	101	99	92	92
Production thousand short tons	704	800	829	r912	965
Sales by producers do.	725	814	882	r1,038	958
Bulk do.	223	373	396	r522	499
Packaged do.	503	441	486	516	459
Value of sales thousands	$18,667	$19,307	$21,892	r$23,988	$26,170
Average per short ton	$25.73	$24.47	$24.81	r$23.11	$27.31
Average per short ton, bulk	$18.34	$20.47	$20.29	r$16.44	$18.32
Average per short ton, packaged or baled	$29.00	$27.85	$28.49	$29.86	$37.07
Imports for consumption thousand short tons	419	485	477	553	518
Consumption, apparent[1] do.	1,042	1,146	1,255	r1,548	1,544
Stocks, Dec. 31: Producers do.	438	577	638	r855	481
World: Production do.	r244,459	r235,915	229,226	p236,505	e252,465

eEstimated. pPreliminary. rRevised.
[1]Apparent consumption equals U.S. primary production plus imports minus exports plus adjustments for industry stock changes.

DOMESTIC PRODUCTION

Peat was produced by 92 active domestic operations with a wide variation in production levels. Ten operations produced more than 25,000 short tons per year. There were five reed-sedge operations and one humus operation in Florida, two reed-sedge operations and one humus operation in Michigan, and one reed-sedge operation in Illinois. These 10 operations accounted for 50% of the total production. Irrespective of the size of the operation, reed-sedge production accounted for 60% of total output in 1987, humus was 30%, sphagnum moss was 5%, and hypnum moss was 5%.

Table 2.—Relative size of peat operations in the United States

Size in short tons per year	Active operations		Production (thousand short tons)	
	1986	1987	1986	1987
25,000 and over	[r]11	10	[r]482	475
15,000 to 24,999	8	13	155	250
10,000 to 14,999	10	7	122	83
5,000 to 9,999	13	9	85	67
2,000 to 4,999	[r]15	19	[r]46	69
1,000 to 1,999	11	9	14	13
Under 1,000	24	25	7	8
Total[1]	92	92	[r]912	965

[r]Revised.
[1]Data may not add to totals shown because of independent rounding.

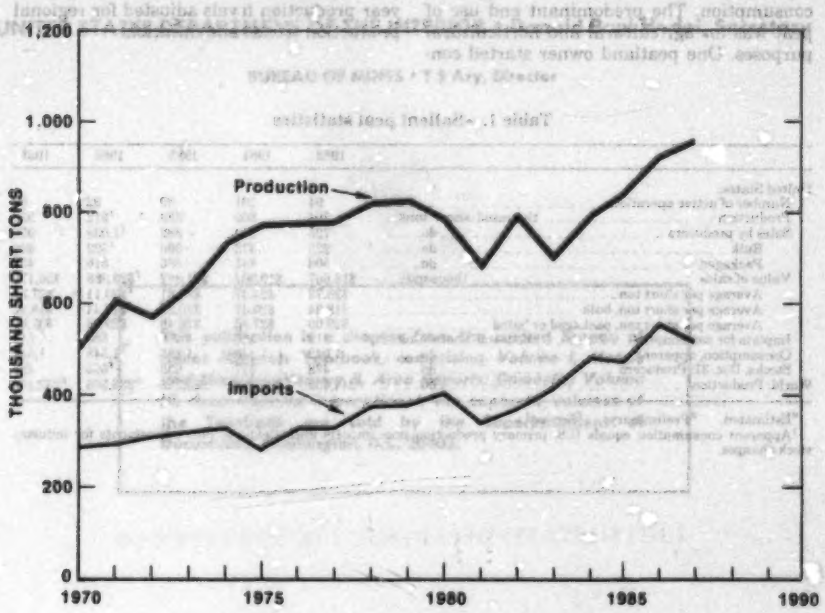

Figure 1.—Production and imports of peat in the United States.

CONSUMPTION AND USES

U.S. peat producers' domestic sales decreased 8% by weight. The sales distribution pattern was of 66% reed-sedge, 28% humus, 3% hypnum moss, 2% sphagnum moss, and 1% other. Sales of unclassified peat were entirely from stocks. The largest end use was for general soil improvement, which accounted for 64% of total sales. Approximately 71% of that was sold in packages, and the rest was sold in bulk form. Large percentages of each of the four types of peat were sold into this end use. The sales of reed-sedge and humus in bulk form to potting soil manufacturers and nurseries accounted for an additional 27% of total sales. Sales increased for peat that was used as an earthworm culture medium, for golf courses, mixed fertilizers, potting soils, and unclassified end uses. Peat sales decreased for general soil improvement, mushroom beds, nurseries, as root packing for flowers, trees, and shrubs, as seed inoculant, and for vegetable growing.

Table 3.—U.S. peat sales by producers in 1987, by use

Use	In bulk		In packages		Total[1]	
	Quantity (short tons)	Value (thousands)	Quantity (short tons)	Value (thousands)	Quantity (short tons)	Value (thousands)
Earthworm culture medium	3,439	$64	263	$7	3,702	$70
General soil improvement	176,905	2,908	439,138	11,006	616,043	13,915
Golf courses	29,825	793	229	13	30,054	797
Ingredient for potting soils	144,992	2,785	13,682	896	158,674	3,681
Mixed fertilizers	9,744	130	--	--	9,744	130
Mushroom beds	1,248	46	13	1	1,261	47
Nurseries	115,655	1,816	665	69	116,320	1,884
Packing flowers, plants, shrubs, etc	717	10	--	--	717	10
Seed inoculant	942	335	5,238	5,036	6,180	5,371
Vegetable growing	1,194	26	125	3	1,319	29
Other	14,128	286	--	--	14,128	286
Total	498,789	9,189	459,383	17,031	958,172	26,170

[1]Data may not add to totals shown because of independent rounding.

Table 4.—U.S. peat production and sales by producers in 1987, by State

State	Active operations	Production	Sales		
		Quantity (thousand short tons)	Quantity (thousand short tons)	Value[1] (thousands)	Percent packaged
California	2	W	W	W	28
Colorado	3	W	W	W	7
Florida	13	353	363	$6,008	15
Georgia	2	W	W	W	99
Illinois	5	W	W	W	96
Indiana	5	45	44	W	68
Iowa	3	W	34	W	59
Maine	2	W	--	--	--
Maryland	1	W	W	W	22
Massachusetts	1	W	W	W	100
Michigan	15	240	231	5,290	73
Minnesota	5	35	30	W	87
Montana	2	W	W	W	1
New Jersey	5	W	32	614	87
New York	4	1	1	34	--
North Carolina	2	W	W	W	62
North Dakota	1	--	W	W	7
Ohio	3	W	W	W	--
Pennsylvania	6	20	18	513	23
South Carolina	1	W	W	W	50
Washington	4	8	7	191	--
West Virginia	1	W	W	W	--
Wisconsin	4	17	9	W	33
Total[2] or average	92	955	258	26,170	48

W Withheld to avoid disclosing company proprietary data; included in "Total."
[1]Values are f.o.b. producing plant.
[2]Data may not add to totals shown because of independent rounding.

Table 5.—U.S. peat sales by producers in 1987, by use

Use	Sphagnum moss			Hypnum moss			Reed-sedge		
	Quantity		Value (thousands)	Quantity		Value (thousands)	Quantity		Value (thousands)
	Weight (short tons)	Volume[1] (cubic yards)		Weight (short tons)	Volume (cubic yards)		Weight (short tons)	Volume (cubic yards)	
Earthworm culture medium	413	1,327	$13	450	1,000	$12	2,139	3,980	$38
General soil improvement	15,523	83,485	852	20,106	59,801	647	452,850	947,622	10,003
Golf courses	744	2,480	20	5,450	12,000	198	15,222	31,280	396
Ingredient for potting soils	166	1,016	12	650	1,500	18	192,758	267,514	3,226
Mixed fertilizers	--	--	--	--	--	--	--	--	--
Mushroom beds	13	108	1	1,200	3,000	45	48	96	1
Nurseries	27	100	2	700	1,600	16	29,980	53,254	600
Packing flowers, plants, shrubs, etc	27	100	2	--	--	--	390	500	4
Seed inoculant	--	--	--	400	1,000	16	5,780	11,716	5,301
Vegetable growing	--	--	--	345	1,200	11	484	968	12
Other	5,400	18,000	126	400	1,000	15	152	459	9
Total[2]	22,313	106,774	1,027	29,801	79,101	982	699,778	1,317,170	19,672

Use	Humus			Other			Total[2]		
	Quantity		Value (thousands)	Quantity		Value (thousands)	Quantity		Value (thousands)
	Weight (short tons)	Volume (cubic yards)		Weight (short tons)	Volume (cubic yards)		Weight (short tons)	Volume (cubic yards)	
Earthworm culture medium	700	1,200	$8	--	--	--	3,702	7,577	$70
General soil improvement	128,064	201,955	2,357	--	--	--	616,043	1,293,963	13,915
Golf courses	8,668	16,496	273	--	--	--	30,094	62,258	797
Ingredient for potting soils	25,100	42,973	396	--	--	--	158,674	312,003	3,681
Mixed fertilizers	9,744	16,240	130	--	--	--	9,744	16,240	130
Mushroom beds	--	--	--	--	--	--	1,261	3,202	47
Nurseries	91,600	152,900	1,280	--	--	--	116,320	207,854	1,884
Packing flowers, plants, shrubs, etc	390	680	4	--	--	--	717	1,280	10
Seed inoculant	--	--	--	--	--	--	6,180	12,716	5,371
Vegetable growing	390	779	6	--	--	--	1,219	2,947	29
Other	25	50	(3)	8,151	40,755	92	14,128	60,225	236
Total[2]	264,681	353,273	4,455	8,151	40,755	92	958,173	1,971,973	26,170

[1]Volume of nearly all sphagnum moss was measured after compaction and packaging.
[2]Data may not add to totals shown because of independent rounding.
[3]Less than 1/2 unit.

Table 6.—U.S. peat production and producers' yearend stocks in 1987, by kind

Kind	Active operations	Production (short tons)	Percent of production	Yearend stocks (short tons)
Sphagnum moss	13	59,441	5.3	40,471
Hypnum moss	9	41,708	4.4	22,067
Reed-sedge	46	574,349	60.1	322,137
Humus	30	289,272	30.2	94,180
Other	1	--	--	2,560
Total	[1]92	954,765	100.0	481,215

[1]Data do not add to total shown because some plants produce multiple kinds of peat.

PRICES AND SPECIFICATIONS

The average reported price per ton for all types of peat, f.o.b. plant, increased 18% in 1987 compared with that of 1986. The unit price for bulk peat increased 11% over that of 1986, and the unit price for packaged peat increased 24% over that of 1986. The price per ton of imported peat increased nearly 10% over that of 1986.

Table 7.—Prices[1] for peat in 1987

(Dollars per unit)

	Sphagnum moss	Hypnum moss	Reed-sedge	Humus	Other	Average
Domestic:						
Bulk:						
Per short ton	22.18	32.29	21.76	13.68	11.24	16.32
Per cubic yard	7.96	13.90	10.67	8.51	2.25	9.62
Packaged or baled:						
Per short ton	75.68	32.63	37.08	30.91	--	37.07
Per cubic yard	10.39	12.92	17.60	17.43	--	16.84
Average:						
Per short ton	46.01	32.51	31.00	16.83	11.24	27.31
Per cubic yard	9.62	13.25	14.90	10.28	2.25	13.28
Imported, total, per short ton[2]	137.93	XX	XX	XX	XX	137.93

XX Not applicable.
[1]Prices are f.o.b. plant.
[2]Average customs value.

Table 8.—Average density of domestic peat sold in 1987

(Pounds per cubic yard)

	Sphagnum moss	Hypnum moss	Reed-sedge	Humus	Other
Bulk	718	861	961	1,245	400
Packaged	277	792	949	1,128	--
Bulk and packaged	418	815	961	1,222	400

FOREIGN TRADE

Peat imports for domestic consumption decreased 7% in quantity but increased nearly 2% in value compared with those of 1986. More than 99% of imported products was sphagnum moss peat from Canada. Sphagnum moss peat was in demand for its special qualities, consumer loyalty to a brand name, and inadequate domestic production. Domestic sphagnum moss peat production was insufficient to satisfy domestic demand. Almost 41% of the imported peat entered the United States through two customs districts in the State of New York. Large quantities also entered through customs districts in Maine, Michigan, Montana, and North Dakota.

Table 9.—U.S. imports for consumption of peat moss in 1987, by country

Country	Poultry- and stable-grade		Fertilizer-grade		Total	
	Quantity (short tons)	Value (thousands)	Quantity (short tons)	Value (thousands)	Quantity (short tons)	Value (thousands)
Canada	13,928	$1,822	499,915	$69,034	513,843	$70,856
Mexico	178	21	--	--	178	21
Netherlands	17	6	74	11	91	17
New Zealand	160	24	12	3	172	27
Philippines	34	4	--	--	34	4
Other[1]	56	12	141	29	197	41
Total[2]	14,373	1,890	500,142	69,076	514,515	70,966

[1]Includes Belgium, Cameroon, China, Denmark, the Federal Republic of Germany, Guatemala, Ireland, Japan, Morocco, Sweden, and the United Kingdom.
[2]Data may not add to totals shown because of independent rounding.

Source: Bureau of the Census.

Table 10.—U.S. imports for consumption of peat moss in 1987, by customs district

Customs district	Poultry- and stable-grade		Fertilizer-grade		Total[1]	
	Quantity (short tons)	Value (thousands)	Quantity (short tons)	Value (thousands)	Quantity (short tons)	Value (thousands)
Boston, MA	37	$5	--	--	37	$5
Buffalo, NY[2]	5,305	825	53,244	$6,873	58,549	7,698
Detroit, MI[2]	7,302	706	43,442	6,025	50,744	6,731
Duluth, MN[2]	--	--	3,436	561	3,436	561
Great Falls, MT[2]	--	--	85,137	14,822	85,137	14,822
Honolulu, HI	--	--	12	3	12	3
Laredo, TX	178	21	--	--	178	21
Los Angeles, CA	77	16	--	--	77	16
Miami, FL	129	16	--	--	129	16
New York, NY	--	--	96	18	96	18
Norfolk, VA[2]	388	126	--	--	388	126
Ogdensburg, NY[2]	25	7	151,129	17,921	151,154	17,928
Pembina, ND[2]	--	--	70,273	11,084	70,273	11,084
Portland, ME[2]	376	41	55,961	5,704	56,337	5,745
St. Albans, VT[2]	29	4	20,663	2,867	20,692	2,871
San Francisco, CA	--	--	35	5	35	5
San Juan, PR[2]	525	117	60	15	585	132
Savannah, GA	1	4	--	--	1	4
Seattle, WA[2]	--	--	16,654	3,179	16,654	3,179
Tampa, FL	1	1	--	--	1	1
Total[1]	14,373	1,890	500,142	69,076	514,515	70,966

[1]Data may not add to totals shown because of independent rounding.
[2]Predominantly of Canadian origin.

Source: Bureau of the Census.

WORLD REVIEW

There were moderate increases in the level of peat used for fuel in Ireland and the U.S.S.R. This caused a 7% rise in estimated world peat production. Reinterpretation of data changed the level of the U.S.S.R. fuel peat consumption and a decrease in world peat production.

Table 11.—Peat: World production, by country[1]

(Thousand short tons)

Country[2]	1983	1984	1985	1986[p]	1987[e]
Argentina: Agricultural use	4	3	4	3	4
Australia[3]	11	15	17	6	15
Burundi	15	15	11	14	14
Canada: Agricultural use	583	e550	709	r e810	900
Denmark: Agricultural use[4]	e37	35	43	53	55
Finland:					
Agricultural use	303	248	378	r e385	385
Fuel	3,698	2,991	3,461	r e3,500	3,500
France: Agricultural use[5]	121	220	220	240	230
Germany, Federal Republic of:					
Agriculture[1] use	2,059	1,575	1,671	2,223	2,400
Fuel	255	307	313	271	270
Hungary: Agricultural use[e]	77	77	77	77	77
Ireland:					
Agricultural use	e105	106	106	106	e89
Fuel	e7,330	8,746	2,897	5,566	e6,331
Israel: Agricultural use[e]	22	22	22	22	22
Netherlands[e]	441	496	500	440	440
Norway:[e]					
Agricultural use	33	33	33	33	33
Fuel	1	1	1	1	1
Poland: Fuel and agricultural use[e]	220	220	220	220	220
Spain	44	61	60	e57	58
Sweden: Agricultural use[e]	66	66	44	66	66
U.S.S.R.:					
Agricultural use[e]	200,000	200,000	200,000	r200,000	210,000
Fuel	28,300	19,300	17,600	21,500	26,500
United States:					
Agricultural use	703	789	828	912	e955
Fuel	1	11	11	--	--
Total	r244,459	r235,915	229,226	236,505	252,465
Fuel peat included in total	r39,835	r31,574	24,503	31,058	36,822

[e]Estimated. [p]Preliminary. [r]Revised.

[1]Table includes data available through June 10, 1988.

[2]In addition to the countries listed, Austria, Iceland, and Italy produce negligible quantities of fuel peat, and the German Democratic Republic and Venezuela are major producers, but output is not officially reported, and available information is inadequate for formulation of reliable estimates of output levels.

[3]Excludes data from some States.

[4]Sales.

[5]Reported figure.

TECHNOLOGY

Construction was started at midyear on a commercial peat-fired electric powerplant. A Belgium engineering firm, a Texas venture capital firm, and a Maine peat producer, Peat Products of America Inc., combined resources to construct and operate the 22.8-megawatt-electric Down East Peat powerplant near Deblois, ME.[2] The output will be purchased by a local power company. A North Carolina peatlands owner, First Colony Farms Inc., applied for environmental permits and regulatory approvals for a 200-megawatt-electric powerplant on the Albemarle-Pamlico Peninsula.

[1]Physical scientist, Branch of Industrial Minerals.

[2]Peat Products of America Inc. (Bangor, ME). DEP Breaks Ground on Electric Power Plant. Press Release, July 11, 1987, 1 p.

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